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# DEVELOPMENT OF TEACHING FACTORY IMPLEMENTATION MANAGEMENT MODEL TO INCREASE THE EFFECTIVENESS OF MARITIME-BASED BUSINESS MANAGEMENT

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**Abstract**

This study is targeted to evaluate the linearity of teaching factory at SMKN 3 Kemaritiman Biak Numfor with aspects of context, input, process, and product. The respondents of this study consisted of teachers and students involved in the implementation of teaching factory. Data were collected through a questionnaire involving an assessment of a number of indicators relevant to the aspects being studied. The findings of the study indicate that teacher respondents consider teaching factory to be very linear with significant quality achievement values. Apart from these conditions, student respondents also consider teaching factory to be linear, although with slightly lower quality achievement values. The findings of this study also identified a number of aspects that still need attention, including the linearity of teaching factory implementation with the demands and conditions of society, supporting factors and production space facilities, implementation time arrangements, and Quality Control activities and increasing the linearity of teaching factory, it is recommended to strengthen understanding of the needs of industry and local labor markets, pay attention to supporting factors and production facilities, increase linear QC activities Standard Operating Procedure (SOP), and carry out innovation and close cooperation with industry and related stakeholders. This study provides significant benefits for SMKN 3 Kemaritiman Biak Numfor in improving the quality and linearity of teaching factory. The findings of this study are used as a foundation for developing more effective strategies and programs in preparing students for the world of work in industry.

**Keywords:** ***Evaluation; Vocational High School; Teaching factory***

## 1. INTRODUCTION

Achieving progressive quality of the workforce will advance the country because at that time the condition of the workforce in Indonesia was dominated by an increasingly high unemployment rate. The total number of open unemployment nationally in August 2021 reached 13.41 million people or 6.49% of the total working-age population. The high number of unemployed is due to the low competence of human resources or because there are not enough job opportunities to accommodate the graduates produced by schools.and Higher Education. To overcome this problem, the policy formulated by the Indonesian Government is to improve the quality of human resources through education, instill an entrepreneurial spirit at every level of education, and try to expand employment opportunities (Wahyuni & Ahyani, 2016).

The Directorate General of Vocational Education focuses on the progressiveness of relevant learning quality at all levels of education so that graduates of vocational education will get jobs within one year after graduation. Relevant education means the existence of a link and match between student competencies and the learning process with the industrial world and the curriculum factor of education is prepared with industry players, involving professional industry players to provide a teaching factory, the availability and completeness of linear practice facilities for the skills taught by students, and optimization of vocational education resources for the progressiveness of benefits for all related stakeholders.

The teaching factory program is a breakthrough for the world of education in Indonesia and a manifestation of qualified, competent and ready-to-work vocational high school graduates in line with the demands of the industrial world, so work-based learning is one solution. The pattern of Indonesian education which is still slumping is also a big challenge to achieve this factor and education in Indonesia only creates job seekers and users, not job creators. The efforts made by the Government to overcome this factor have not been right on target, starting from changing

policies in the world of education has not been able to eliminate this pattern. Learning programs are able to improve the quality of competent vocational high school graduates and a curriculum that refers to the world of work, it is hoped that it will change the face of Indonesian Education (F. Syauqi, 2018).

Tefa is a promising pattern for adapting theoretical knowledge and innovation into practice in the industrial world. At that point the definition of industrial learning must be given to clarify in distinguishing it from the learning factory. Teaching factory is also targeted to improve the quality of learning through learning by doing. Learning with this model will foster an entrepreneurial spirit for students in schools. Through vocational education, it is expected to produce quality and competent workers as well as having the skills to create their own jobs is the criterion for the success of the teaching factory.

*Teaching factory*is also one of the indicators to evaluate the performance of Vocational High Schools, Implementing the program requires optimal integration between related stakeholders. Teaching factory is an integration between the industrial world, educational institutions and the Government in preparing qualified and competent graduates to enter the workforce. The teaching factory program is an implementation of Project Based Learning in the sense that the process of expertise or skills is designed and implemented based on actual work procedures and standards to produce linear products according to industry demands (Fuadi et al., 2016). The process of implementing the teaching factory program is by combining the concept of business and linear vocational education of relevant expertise competencies, one of the tourism group vocational schools in Buleleng Regency, the vocational school in Lokapaksa Village, Seririt District has four expertise competencies, namely Hospitality, Culinary Arts, Business Accounting and Fashion. The four expertise programs have collaborated with industry in implementing the teaching factory program.

The success of teaching factory in vocational high school can be achieved if all aspects in the implementation of teaching factory have high quality achievement value. Several aspects in the implementation of teaching factory include aspects of context, input, process, and product. The context aspect includes the vision and mission and objectives of the field of expertise program, community needs, industry needs, and technological developments in the industrial world. The input aspect includes HR support, namely teachers, technicians, and parties involved in the implementation of teaching factory in schools and supporting facilities, namely buildings, workshop study rooms, laboratories, libraries, and cooperation with industry. The process aspect includes the implementation of teaching factory learning, and assessment of learning outcomes. The product aspect includes products with market needs, and the level of product selling value in the market and its performance.

Based on findings (Aulia, 2021), the implementation of teaching factories in vocational schools faces challenges including the scarcity of competent human resources, inadequate workshop facilities, and engagement that still needs to be improved with the business world and industry. Efforts have been made to recruit experienced educators, improve facilities, and strengthen cooperation with industry. However, a number of these stages still need to be improved so that the implementation of teaching factories can be more effective in producing vocational graduates who are ready to work.

The implementation of teaching factory at SMKN 3 Kemaritiman Biak Numfor is a strong reason to evaluate its implementation because the approach provides significant benefits for students and the vocational school. With teaching factory, students can be directly involved in learning experiences that are similar to the real work environment, hone relevant practical skills, and gain a deep understanding of the industrial world. Through collaboration with local industries, SMKN 3 Kemaritiman Biak Numfor can provide authentic learning experiences that lead to the progressiveness of students' readiness to enter the world of work. However, evaluation of the implementation of Teaching factory is important to evaluate the effectiveness and efficiency of its implementation, identify advantages and disadvantages, and provide a basis for further improvement and development.

This study identified several problems in the implementation of teaching factory at SMKN 3 Kemaritiman Biak Numfor, including linearity in terms of context, input, process, and product. The target of this study is to understand the degree of linearity of teaching factory in the school, including the school's vision and mission, support from human resources and facilities, implementation of learning, products produced, and challenges faced in facing industry and job market demands. This study is expected to provide in-depth insight into the potential and improvements in the implementation of teaching factory at SMKN 3 Kemaritiman Biak Numfor, as well as provide recommendations to improve the overall quality of the program.

The 2020-2024 Roadmap of the Directorate General of Vocational Education targets that by the end of 2024, 15% of Vocational High Schools spread throughout Indonesia will have a business learning unit in the form of a teaching factory. The teaching factory model is a vocational learning based on production/services and based on

work competencies. Teaching factory is a combination of learning processes to produce products or services that are worth selling to generate added value to the school. The learning activities in the vocational high school are mostly just practices with practice media and producing goods that have no selling value. Production activities that have selling value in the form of goods or services can develop the potential of vocational high schools to explore sources of financing as well as being a source of learning (Fajaryati Nuryake, 2015).

## 2. METHOD

This study is an evaluation of the teaching factory program at SMKN 3 Kemaritiman Biak Numfor with the target of measuring its success and benefits. The CIPP evaluation model was used in the study to evaluate four important aspects, namely context, input, process, and product of the teaching factory program (Tseng, 2010). The focus of the study was focused on evaluating the implementation and effectiveness of the teaching factory, including the integration of theory and practice, student engagement, use of resources, and its impact on student skills. The main objective of this study was to provide a deep and comprehensive understanding of the implementation of the teaching factory program and provide recommendations to improve its success. The data examined in this study related to the teaching factory at SMKN 3 Kemaritiman Biak Numfor, measured through four dimensions, namely context, input, process, and product.

Data acquisition techniques include the use of questionnaires and observations (Sugiyono, 2008). Questionnaires were used to collect data from teacher and student respondents related to aspects of context, input, process, and product. Regardless of these conditions, observations were carried out to observe and record student learning activities and learning facilities available in the teaching factory environment (Rukmana et al., 2021). The collected data will then be analyzed by implementing statistics and data distribution tables. Data analysis is carried out in the stages of context, input, process, and product, with predetermined evaluation criteria. This study also uses the Glickmann quadrant to describe the effectiveness of the program cumulatively based on the four aspects measured (Glickman, 1981). Through this approach, this study is targeted to provide a comprehensive understanding of the implementation of the teaching factory at SMKN 3 Kemaritiman Biak Numfor and provide recommendations for improvement and development of the program in the future.

## 3. RESULT AND DISCUSSION

The data collected in this study were analyzed using a number of statistical methods including mean, standard deviation, mode, and median. Regardless of these conditions, the data were also visualized in the form of diagrams to facilitate understanding. Before the analysis was carried out, the data were tabulated and categorized linearly according to the variables studied. Then, the calculation of the value for each item in each component of the curriculum evaluation was carried out, so that a value was obtained that represented the evaluation of each component. The implementation of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor is based on the Context Data perspective. The components were obtained through a questionnaire given to 25 teachers at SMKN 3 Kemaritiman Biak Numfor. The questionnaire consisted of 8 questions targeted at identifying the degree of implementation of the teaching factory in linear schools, vision and mission, the needs of the world of work, government policies, and the demands and conditions of the community in the school environment. With this questionnaire, the data collected provides insight into the linearity of the implementation of the teaching factory at SMKN 3 Kemaritiman Biak Numfor from the teacher's perspective.

The statistical analysis of the data revealed several important parameters and the mean of the data was 27.36, reflecting the middle value of the entire data. The median value, which is the middle value when the data is sorted, was 28.00. The most frequently occurring value in the data, or mode, was 24.00. The standard deviation of the data was 3.094, measuring the degree to which the data was spread out from the mean. The lowest value in the data was 25, while the highest value was 125. These measures help in better understanding the variation and distribution of the data.

The component data was obtained based on the results of a questionnaire given to 70 respondents at SMKN 3 Kemaritiman Biak Numfor. The questionnaire consisted of 4 questions. which evaluates the linearity of the implementation of teaching factory in schools. The results of statistical analysis of the data reveal a number of important aspects. The average data is 10.97, indicating the middle value of the entire data. The median value, which is the value

Data related to the linearity components of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor, focusing on the process aspect, were obtained through the use of questionnaires filled out by productive subject teachers and implementing students involved in the program. A number of indicators in the process aspect involve

implementation management, time and space management, student attendance, and implementation of Quality Control. These data are important for evaluating the degree to which the process aspect in the implementation of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor has met the established criteria.

Data related to the process aspect in the linearity component of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor were obtained through the use of a questionnaire filled out by 25 teachers. The questionnaire consisted of 14 questions designed to evaluate how the implementation of the Teaching Factory is organized and managed, including aspects of time management, space, student attendance, and implementation of Quality Control. Data analysis from the questionnaire will provide a description of the extent to which the process aspect has been fulfilled in the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor.

Data on the linearity component of teaching factory at SMKN 3 Kemaritiman Biak Numfor based on the process aspect perspective were obtained based on the results of a questionnaire given to 70 student respondents. The questionnaire consisted of eight questions designed to measure students' perceptions of the linearity of teaching factory implementation in the process aspect. The data provide a description of students' views on the effectiveness and quality of teaching factory implementation from the perspective.

Data related to the linearity of the implementation of the Teaching Factory measured from the process aspect indicates an average of 21.03, a median of 21, and a mode of 21. The standard deviation is 2.797, indicating the distribution of data from the average value.

Research findings based on student data indicate the program *Teaching factory*at SMKN 3 Kemaritiman Biak Numfor is considered linear with a quality achievement value of 10.97 or 68.57%. The program is considered linear to the school's vision and mission and meets the needs of the world of work, providing significant benefits for students in preparation for the world of work and interview data with students, the program is running well, although there are slight shortcomings in the facilities and practical tools that still implement manual. Students provide suggestions to improve facilities and practical tools to be more linear to the development of industrial technology and focus on the importance of updating facilities and practical materials linear to the development of science and industrial technology.

Students felt that the program was linear to the needs of the workplace and provided relevant direct experience and the evaluation results showed that the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor succeeded in understanding and responding to student needs in the context of education and preparation for the workplace. Students felt actively involved in identifying needs and expectations, and supported in achieving career goals. The program helped students build interpersonal and problem-solving skills that are important in the workplace. Linearity in the context aspect indicates that the program helps students build strong connections between formal education and the demands of the workplace, preparing for future challenges.

Evaluation of the implementation of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor based on teacher data indicates that the program is very linear with a quality achievement value of 46.72 or 77.87%. The evaluation examines a number of indicators such as completeness of facilities, preparation for implementation, linearity of the Standard Operating System and aspects of theory and production room facilities. The evaluation results indicate that the implementation of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor meets the established indicators. Workshop facilities and supporting factors are considered adequate, implementation preparation has been carried out well, and the implementation is linear SOP. Theory and production room facilities also meet the needs required in Teaching Factory learning.

However, in an interview with one of the teachers, it was highlighted that the allocation of available time was a challenge. The teacher felt that the allocation of time was sometimes burdensome, especially with other tasks that had to be handled. Thus, it is recommended to consider a better allocation of time for the implementation of the Teaching Factory so that it can run more efficiently. This requires cooperation between teachers and the curriculum to overcome these problems.

The evaluation results underline the important role of teachers in the successful implementation of the Teaching Factory program. Teachers at SMKN 3 Kemaritiman Biak Numfor have proven to have strong competencies in designing, organizing, and implementing learning strategies that are relevant to the needs of the workplace. Thus, the evaluation provides a deep understanding of the effectiveness of input aspects in the implementation of the Teaching Factory program at SMKN 3 Kemaritiman Biak Numfor. Teachers play a central role in running the program successfully, and the evaluation validates that the role is a key factor in producing meaningful and relevant learning experiences for students. Evaluation of the implementation of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor based on student data indicates that the program is considered linear with a quality achievement value of 32.70 or 68.13% and in this evaluation, a number of indicators are used, including the ability

of teaching staff, preparation for implementation, linearity of the schedule, and facilities for theory and production rooms. Students stated that the teaching staff in the Teaching Factory had adequate skills. Preparation for program implementation was also considered good. However, students provided notes related to the linearity of the schedule with the implementation of the program that needed to be considered in order to be able to follow the activities more optimally. The theory and production room facilities were considered quite adequate. The evaluation results indicated that students considered the abilities of the teaching and supervisor teachers to be linear to the established standards. The teachers had received direct training from the industry, so that they had the knowledge and skills of linear SOPs that apply in the industrial world. The evaluation provided a deeper understanding of the input aspects from the perspective of students in the Teaching Factory program at SMKN 3 Kemaritiman Biak Numfor. Students felt significant benefits from the program in developing skills and knowledge that were relevant to the world of work. The resources, facilities, and support of the teachers had provided a supportive learning environment. Students also take an active role in planning and implementing linear projects in the industrial world. feel they have a better chance to develop creativity and innovation in producing quality products. The experience helps understand the relationship between theory and practice in the workplace.

## 4. CONCLUSION

Overall, the evaluation illustrates that the input aspects of the Teaching Factory program have provided students with a supportive learning environment, adequate resources, and opportunities to develop linear skills and knowledge of the demands of the workplace. Students feel more prepared to face challenges and opportunities in the industrial world after completing this program. The evaluation of the Teaching Factory at SMKN 3 Kemaritiman Biak Numfor by teachers indicated very positive results with a quality score reaching 79.71%. Teachers play an important role in managing this program. Time management needs to be improved, but the arrangement of the space has been good. Teachers facilitate learning well, create an inclusive environment, and bridge theory and practice. also support the development of student skills. Overall, the role of teachers is crucial in creating an effective learning experience in this Teaching Factory.

Based on student assessment at SMKN 3 Kemaritiman Biak Numfor, Teaching factory is assessed as linear quality value 66.01%. Teaching factory products have the potential to be sold well and linear SOPs that apply, but product performance requires improvement, especially in the Quality Control factor. The role of students in this program very important. applying theory in real situations, developing technical skills, thinking creatively, and learning about teamwork. These equip students with the competencies needed in the workplace. The evaluation provides valuable insights for program development.Teaching factory, with a focus on improving product performance through strict QC supervision, will ensure that products meet standards.

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